SPECTROSCOPIA MOLECULAR

Un bulletin mensual de novas e informationes de interesse e valor al spectroscopistas molecular

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COLLOQUIO VA ESSER TENITE A AMSTERDAM

LE 6te Colloquio International de Spectroscopia essera tenite a Amsterdam le 14 a 19 de maio 1956, sub le egide del Koninklijke Nederlandse Chemische Vereniging e le Nederlandse Natuurkundige Vereniging. Le Presidente del Committee de Organisation es Prof. W. van Tongeren.

Le themas del Colloquio essera:

I. Spectroscopia Emissionic.
a) Photometria de flammas.
b) Spectros de arco.
c) Spectros de scintilla.
d) Quantometria.
I, II. Instrumentation.
II. Spectroscopia Absorptionic.
f) Spectroscopia infrarubie e Raman.
g) Spectroscopia ultraviolette, visibile, e fluorescente.

Informationes additional es disponibile ab le Secretario, Sr. F. Freese, Laboratorio de Chimia Analytic, 125 Nieuwe Achtergracht, Amsterdam - C4, Hollanda. Offertas de discursos es desirate.

NOVE SOCIETATE ES FORMATE IN DANMARK

HA ESSITE FORMATE in Danmark in februario de iste anno un Dansk Forening for Molekylspektroskopi (Societate Danese pro Spectroscopia Molecular). In le primavera, il ha discussiones in re le spectros Raman e infrarubie de furano e furanos deuterate a un vespere, e in re le applicabilitate del technicas infrarubie pro le estimation del derivativos de penicillino un altere vespere.

Iste autumno il habera discussiones in re:

a) Rotation interne restringite in simple moleculas.
b) Le uso de cellas a multiple reflexiones in le infrarubio.
c) Le historia experimental del problema del suboxydo de carbon.

Le adresse del Societate es: Laboratorio Chimic, Universitate Copenhagen, Østervoldgade 5, Copenhagen K, Danmark.

BØRGE BAK

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IL ES UN BENEFICIO al mundo quando individuos es contente de esser se mesme, non cisellate al lisie patrono del tempores, sed simple, original, e inaffectate in manieras e parolas.

-- ANN THACKERY RITCHIE, Records of Tennyson.

LITTERAS AL REDACTOR

COMMENTOS ADDITIONAL IN RE SIGMA E KAYSER

IO HA LEGITE con interesse vostre responsa a mi commentos in re kayser e sigma in Spec. Mol. 4, 62 (1955).

1) Io ha semper mantenite que il es incorrecte dicer "1452 wave numbers", sed io dubita que 90 pro cento del spectroscopistas face ille error. Io non pote vider alique incorrecte in "centimetro minus un" o "centimetro reciproc" o "undas per centimetro". Certemente nos non pote haber un breve parola pro cata unitate. Nullo suggererea introducer un nove parola pro centimetro a causa que isto ha 4 syllabas.

Io esseva felice audir heri que le Commission Super Notation del Union Astronomic International al recente assemblea in Dublin ha rejectate le designation kayser pro cm^{-1}.

2) Il pare a me un practica commun usar unitates differente pro quantitates physic. A vices on mesura energias atomic e molecular in volts, a vices in ergs, a vices in unitates de massa, a vices in kcal/mole, a vices in cm^{-1}, etc. Omne de illos es intendite como energias.

In simile maniera, il ha essite le practica pro un longe tempore dar le frequentias de vibrationes molecular in unitates de cm^{-1}, simplemente proque le unitate sec^{-1} in iste caso duce a tal inconvenientemente grande numeros, e etiam proque on obtene le frequentias ex le spectro normalmente in unitates de cm^{-1}.

Assi on dice -- pro usar vostre exemplo--un molecula triatomic ha le frequentias vibrational ν_1, ν_2, ν_3 le magnitude del quales es, dice nos, 1000, 1500, e 2000 cm^{-1}, respectivemente. Proque iste typo de expression occure innumerabile vices in articulos e libros spectroscopic, il pare esser un abbreviation justificate del expression multo plus longe e difficile que le frequentias vibrational ν_1, ν_2, ν_3 corresponde al numeros de undas σ_1, σ_2, σ_3 le quales ha valores de 1000, 1500, e 2000 cm^{-1}, respectivemente. Sur iste base, in dar un tabula de frequentias vibrational de un molecula in unitates de cm^{-1}, deberea on designar le tabula "vibrational wave numbers" (numeros de undas vibrational) del molecula? A me isto sona ben estranie.

Lo in le qual on es interessate es le frequentias. Il non ha un tal cosa como un numero de undas de un molecula -- vibrational, rotational, o alias. Que on divide per c pro convenientia es un materia trivial e non significa que on viola le principio de un lingua scientific que es exacte e correcte.

Io non pote vider proque, si scientistas mesura energias molecular in varie unitates de dimensiones differente, le mesme possibilitate non deberea exister pro le frequentia.

G. HERZBERG
Consilio National de Recerca
Ottawa 2, Ontario, Canada

* * *

Commentos del Redactor:

1) Un practica commun non es necessarimente correcte. A me, il pare tanto incorrecte mesurar energia in cm^{-1} como mesurar frequentia in cm^{-1}. Il es le quantitate W/hc que debe esser exprimite in cm^{-1}, non le energia W mesme. Similemente, il es le quantitate ν/c que debe esser exprimite in cm^{-1}, non le frequentia ν mesme.

2) Si le numeros listate in le tabula es de facto numeros de undas, le tabula debe esser designate "Numeros de undas pro le molecula XY_2". Certemente le numeros in le tabula non es le numero de cyclos per sec. On pote scriber:

Tabula 1. Numeros de undas pro le molecula XY_2.

Frequentia vibrational	Numero de undas in kaysers
$\nu_1(a_1)$	1000

$\vartheta_2(a_2)$	1500
$\vartheta_3(b_1)$	2000

Isto es clar e inambigue pro le novicio tanto como le veterano in le campo del spectroscopia molecular.

* * *

PROQUE NON WPC IN LOCO DE CM^{-1}?

COMO PARTICIPANTE in le currente controversia in re le symbolo pro centimetros reciproc, io prefere cm^{-1} in loco de K pro iste unitate de numero de undas. Ha alicuno proponite le uso del litteras wpc (waves per cm), in analogia con le uso del litteras cps (cyclos per sec) pro le frequentia? Io recognosce naturalmente que isto ha le disavantage que illo non es international.

NELSON FUSON

Departimento de Physica
Universitate Fisk
Nashville 8, Tennessee
Statos Unite de America

* * *

UN SERVICIO DE PLACIAMENTO?

IO DESIRA FACER le sequente proposition con reguardo a Spectroscopia Molecular. Forsan il esserea possibile insertar in le periodico le nomines del institutos que darea le benvenita a laboratores in recerca ab altere paises, e pote provider pro illes assistentia financiari quando notitia sufficiente es date.

Similemente, si laboratores in varie paises qui desira passar alicun tempore in un altere laboratorio inviarea a vos lor nomines e adresses pro publication, tunc institutos que desira assistentes de recerca saperea a qui scriber.

Il pare a me que, si alique de iste natura poterea esser facite, SM provideresa un servicio multo valorabile pro le spectroscopia al nivello international.

Io esseva grandemente imprimite, durante mi visita a Europa iste anno, con le numero de scientistas qui desira venir a iste pais pro un breve periodo, sed qui non desira assumer le labor enorme de scriber a un grande numero de laboratorios pro trovar si un position es disponibile. Similemente, io cognosce multe directores de recerca in iste pais qui ha positiones disponibile in le campo infrarubie e non pote trovar spectroscopistas pro illos.

G. B. B. M. SUTHERLAND
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Statos Unite de America

POSITIONES

Disponibile

INSTITUTIONES que ha positiones disponibile es invitate a listar lor necessitates, si illos es in le campo de spectroscopia molecular.

Desirate

SPECTROSCOPISTA MOLECULAR desira un position permanente in recerca academic. Dr. Phil. in chimia physic, 1950. Publicationes. Experientia include le infrarubio experimental e theoric del statos liquide e solide de moleculas polyatomic, le spectroscopia Raman, e computationes del constantes del energia potential de moleculas polyatomic. Scribe a iste periodico, codice TAPII.

. . . NOVAS . . . . .

(cont. ab p. 81)

DR. S. R. POLO es nunc laborante in recerca al Consilio National de Recerca a Ottawa in Canada.

* * *

DR. S. MIZUSHIMA esseva durante le estate passate al Universitate Notre Dame a South Bend in Indiana, S. U. A. Ille nunc ha retornate a su laboratorio in Tokio.

* * *

Srs. E. A. PIOTROWSKI e L. J. NUGENT se ha jungite con le gruppo de recerca spectroscopic al Instituto Technologic de Illinois in Chicago.

(continuate al pagina 89)

CALENDARIO

--FEBRUARIO 15-17. Symposio spectroscopic al Laboratorio National Argonne, proxime a Chicago. (Vide Spec. Mol. 4, 65 (1955); F. S. Tomkins o M. Fred, Argonne National Laboratory, Box 299, Lemont, Illinois, S. U. A.)

--FEBRUARIO 27 - MARTIO 2. 7me Conferentia Pittsburgh super chimia analytic e spectroscopia applicate. Hotel William Penn. (Julia Senko, Westinghouse Research Laboratories, East Pittsburgh, Pennsylvania, Statos Unite de America.)

--MAIO 14-19. 6te colloquio international de spectroscopia, Amsterdam, Hollanda. Emissionic: photometria de flammas, influentia del atmosphera gasose super le arco de carbon a currente continue, excitation per scintillas, instrumentation. Absorptionic: spectroscopia Raman e infrarubie, visibile, ultraviolette, e fluorescentic. (F. Freese, Lab. de Chimia Analytic, Nieuwe Achtergracht 123, Amsterdam-C.)

--JUNIO 11-15. 11me symposio annual super spectroscopia e structura molecular, Universitate Ohio State. (H. H. Nielsen, Departimento de Physica, Universitate Ohio State, Columbus 10, Ohio Statos Unite.)

--JUNIO 11-15. 4te assemblea del Commission Juncte de Spectroscopia del Consilio International de Uniones Scientific, Columbus (tentative). (Secretariato del Commission Juncte de Spectroscopia, Laboratorio Zeeman, Muidergracht 4, Amsterdam-C, Hollanda.)

--JULIO 12-14. 7me symposio international de astrophysica. Moleculas in objectos astronomic. Liége, Belgica. (H. C. Urey, Chef del symposio, Instituto de Studias Nucleari, Universitate Chicago, Chicago 37, Illinois, S. U.)

* * *

PER FAVOR, invia vostre $2.00 pro 1956.

* * *

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Labor editorial es gratis. Le costo de preparation e distribution es recipite ab spectroscopistas, bibliothecas, e companias. Assistentes de publicat ion es Srta. Ruth Grining e Sr. Jerome M. Dowling. Le imprimer es facite per le Servicios de Bureau al IT de Ill. sub le direction de Srta. Virginia Brown.

DISPONIBILE

1. Spectroscopia Molecular, 12 numeros per anno, $2.00 nette, franc de posta.
2. Volumines passate de Spec. Mol. pro le annos 1952, 1953, e 1954; $3.00 nette per cata un, franc de posta.
3. Numeros individual, $0.25 per cata un.
4. Monographias super Spectros Molecular. I. Regulas de Selection pro Spectros Vibrational de Moleculas Polyatomic, Forrest F. Cleveland, 1953. 25 paginas, $0.75 nette.
5. II. Tractamentos del Coordinatas Normal de Moleculas Polyatomic, Salvador M. Ferigle e Alfons Weber, 1955. 30 paginas, $1.00 nette.
6. Companias pote attachar un pagina de informationes in re lor productos al sequente numero, si illos es de interesse a spectroscopistas molecular.
7. Spectroscopistas qui desira junger se con le Societate del Spectroscopistas Molecular debe scriber a Dr. Ann Palm, Secretario-Tresorero, Lab. de Spectroscopia, Instituto Technologic de Illinois, Chicago 16, Ill., Statos Unite.

(Per favor, face cheques pagabile a Spectroscopia Molecular.)

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(cont. ab p. 83)

DR. WALLACE R. BRODE ha recipite le grado de Doctor de Scientia Honorari ab le Collegio Whitman a Walla Walla in Washington, Statos Unite de America.

* * *

DR. WILLIAM S. GALLAWAY ha acceptate le position novemente establite de coordinator de applicationes infrarubie con le Division Beckman de Beckman Instruments, Inc. a Fullerton in California.

* * *

CAMPOS DE FORTIA de moleculas imperturbate es sub investigation al Universitate Tennessee per un gruppo de 7 recercatores del quales WILLIAM H. FLETCHER e ALVIN H. NIELSEN es le chefs. illes spera que il essera possibile adder al saper in re le energias que es relaxate in reactiones tal como le combination de aere e gasolina. Nielsen construe un nove spectrometro infrarubie de plus grande potentia pro iste studio.

* * *

CHUN CHIA LIN del Universitate Harvard ha essite appunctate membro del Departimento de Physica al Universitate Oklahoma ubi ille va recercar in le spectroscopia molecular.

* * *

SPECTROS DE ABSORPTION infrarubie e ultraviolette de compositos de interesse in le recerca super cancere es desirate pro publication e pro le formation de indices.

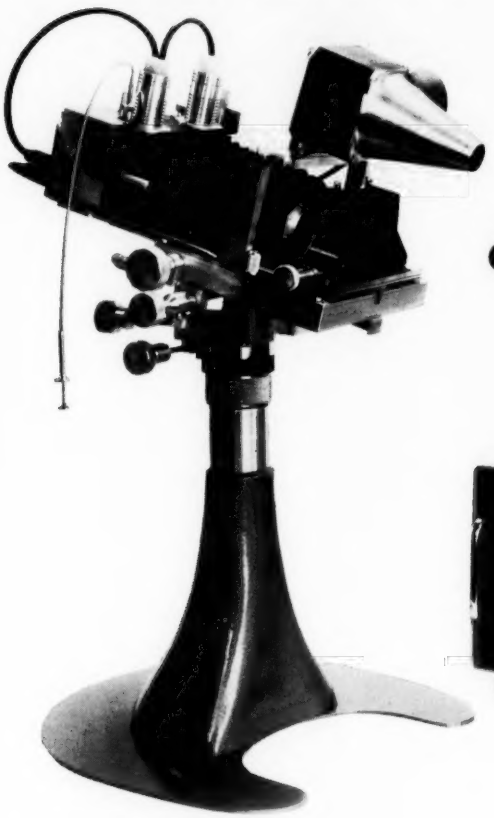
Datos infrarubie debe esser inviate al Committee on Spectral Data, National Research Council, Attention E. Carroll Creitz, Secretary, National Bureau of Standards, Washington 25, D. C.

Datos ultraviolette debe esser inviate a J. M. Vandenbelt, Chairman, Section 3, Ultraviolet Data, ASTM Subcommittee on Standard Data, Physical Chemistry Section, Parke, Davis and Company, Detroit 32, Michigan.

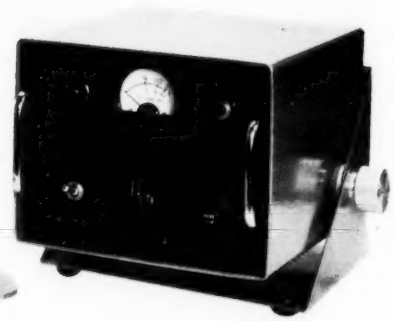
* * *

G. R. FOWLES (Universitate Utah) ha recipite un subvention ab le statounitese Fundation National de Scientia pro studiar le cambiamentos isotope in le spectros.

For Accurate Close-Ups...



a NEW Stereoscopic Camera



For the first time, a stereoscopic camera has been optically designed to eliminate guesswork and distortions on close-up shots. The new 35 mm Donaldson camera now offered by P-E can be used either by the amateur or the professional to take color or black and white close-ups of unequalled accuracy.

A built-in focussing arrangement insures this accuracy and permits shooting in less than a minute's time. The camera offers ten magnification settings, up to a maximum of 2½ times on the film and 13 times on the viewer. A small aperture gives maximum depth of field. The variable intensity light source is an electronic "strobe" flash, of short duration. Exposure, magnification and stereoscopic effect can be exactly reproduced as desired.

The Donaldson camera was developed by a medical research man to fill the needs of ophthalmologists, dermatologists, surgeons, research workers and educators for a tool to record disease processes accurately. It includes a power supply, electronic flash, camera stand and viewer.

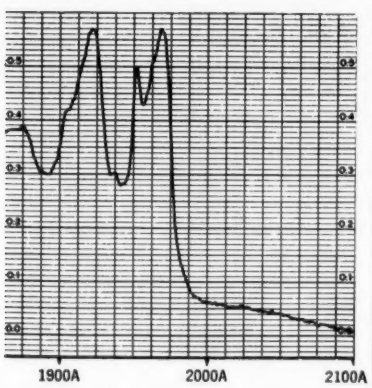
Further information can be secured from:

Perkin-Elmer
CORPORATION
NORWALK, CONNECTICUT

Cary / *instrument abstracts*

Applied Physics Corporation/Pasadena/California

Extension of Spectrophotometer Range to 1900A Opens New Region for Analysis



This spectrum of methyl ethyl ketone vapor illustrates the use of the Model 14 in the lower wavelength regions.

A recent development in the Cary Model 14 Recording Spectrophotometer has opened a new region which will permit analysis of a number of compounds not previously adaptable to ultraviolet spectrophotometry with standard instruments.

Good performance to 1900A and even shorter wavelengths is now provided with the Model 14 through the use of optical elements of increased ultraviolet efficiency in the double monochromator. The spectrum of methyl ethyl ketone vapor, shown, indicates just one class of compounds whose spectra in this region provide analytical possibilities. In addition to ketones, it is likely that alcohols, mono-olefines, aromatics and other compounds will also have useful spectra in this region.

The prism-grating double monochromator of the Model 14 is noted for its high resolving power with low scattered light (less than a part per million) in the ultraviolet, visible and near infrared regions. By using the new, more efficient optical elements in this double monochromator, the extended range is achieved.

This development is the result of constant effort to improve the performance, reliability and usefulness of Cary Instruments by taking full advantage of advancements in materials, components and technology.

For additional information on the new Model 14 and other Cary Instruments, write for Bulletin SM-2.

The Cary Model 14 Spectrophotometer provides performance to 1900A, with possibilities for even shorter wavelengths. Heretofore such performance was possible only on custom made instruments.

VIBRATING REED AMPLIFIER IMPROVES MASS SPECTROMETER PERFORMANCE

The Cary Vibrating Reed Amplifier, Model 36, is being used in an increasing number of mass spectrometer installations where high molecular weight analyses make rapid scanning of mass numbers desirable. The Model 36 combines rapid response with high sensitivity. Response is critically damped, with an 0.1 sec. natural period (98.6 percent response in 0.1 second). Thus a range of 100 mass numbers can be accurately scanned in as little as one minute. Sensitivity and range are such that as little as 10^{-15} amperes and up to 10^{-11} amperes can be measured to a reproducibility of 0.2 percent without change of range. Stability of the Model 36 is superior too—zero drift is less than 10^{-15} amperes.

Another Cary instrument of interest to mass spectrometer users is the Model 30 Vibrating Reed Electrometer. It is preferred for measuring ion currents in work where extreme response speed is not required, such as isotope determinations. Sensitivity of the Model 30 is 10^{-17} amperes, and like the 36 it has high stability — less than 5×10^{-17} amperes zero drift.

Cary instruments: / SPECTROPHOTOMETERS · RAMAN SPECTROGRAPH · ELECTROMETERS
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